

Feasibility of a Surveillance System for Ambient Air Quality and Asthma

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Asthma and Ambient Air Quality

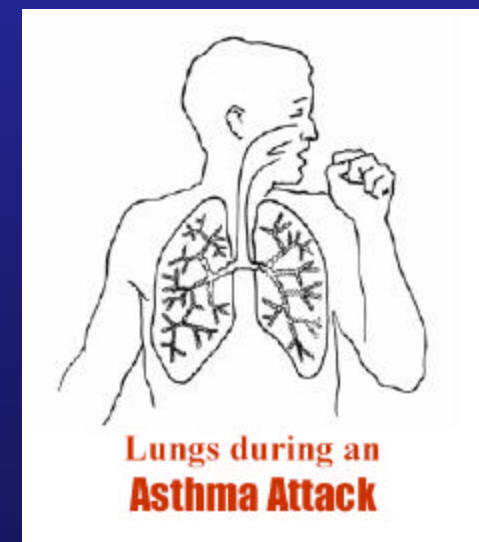
- Why Asthma and Ambient Air?
- Background
- Surveillance Goals
- Status
- Next Steps
- Discussion questions

Why Asthma and Ambient Air?

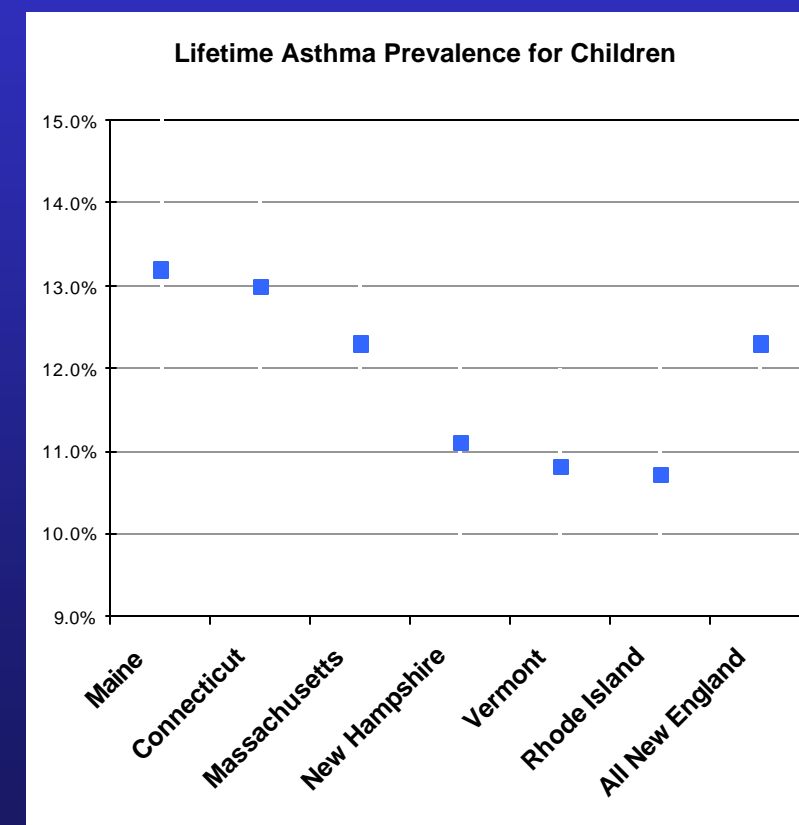
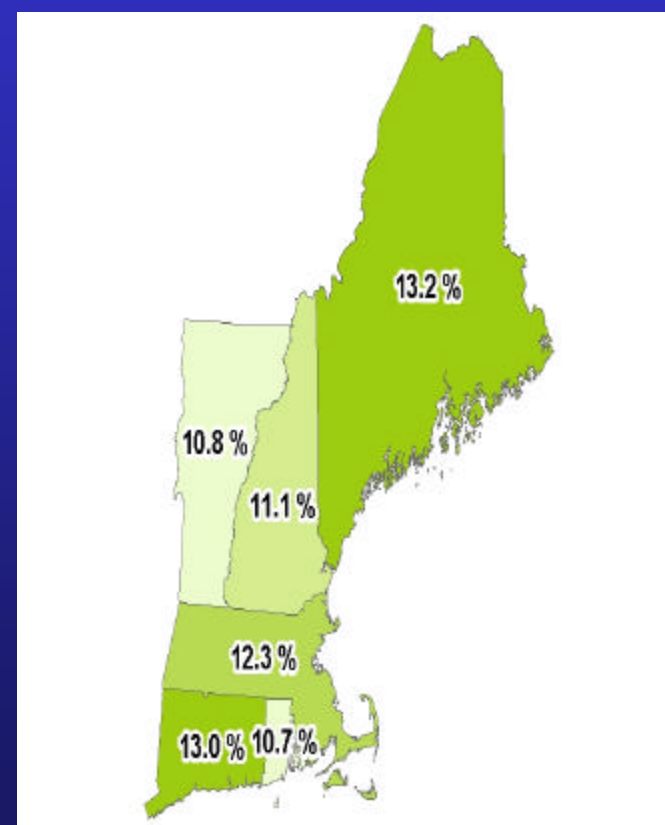
- High prevalence of asthma
- High levels of ozone
- Known link
- Intervention - need to evaluate

Ozone Health Effects

- Inflames and damages cellular lining of lungs
- Increases sensitivity to allergens
- Known to aggravate asthma

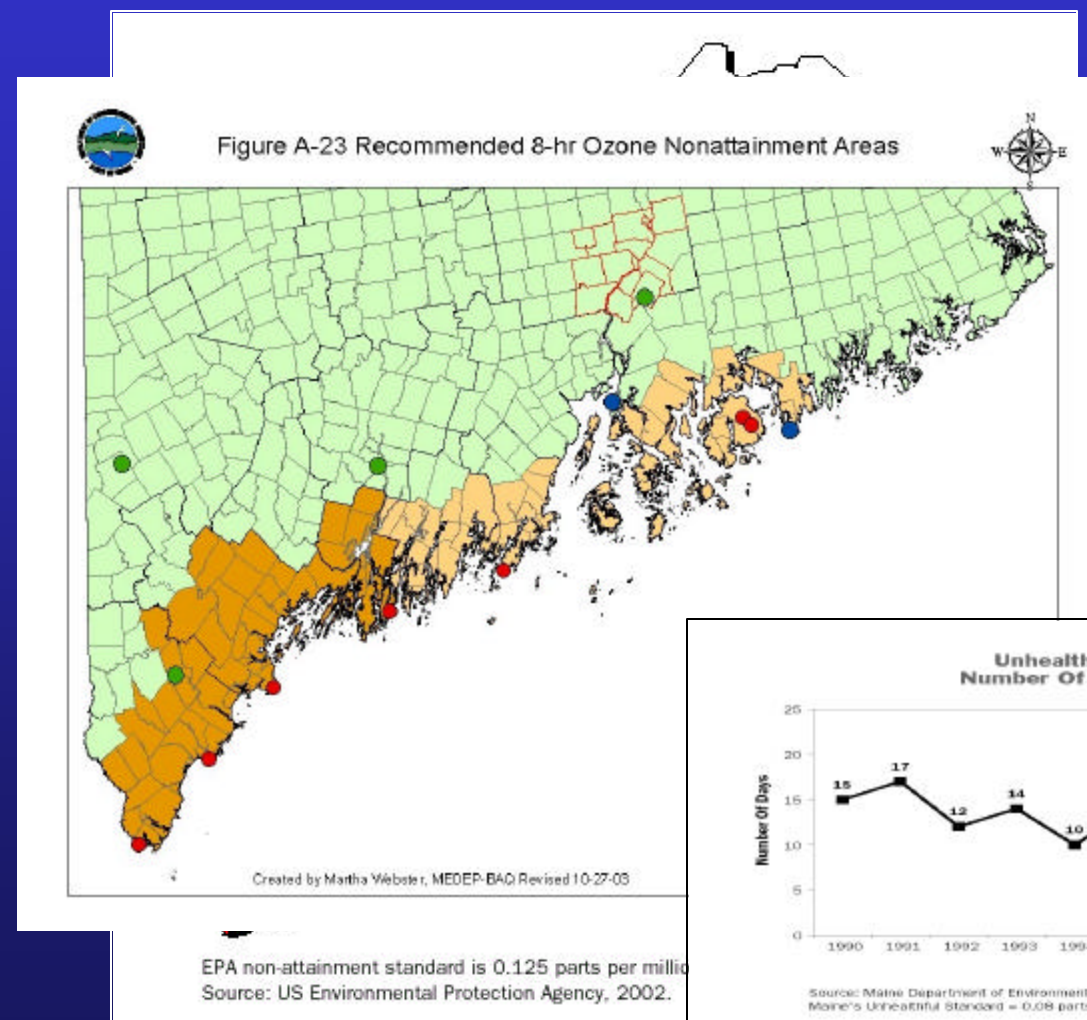


Asthma Prevalence



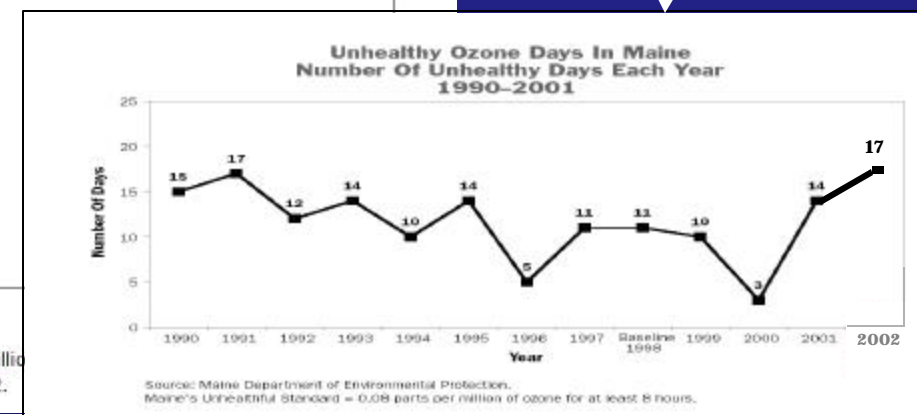
Source: New England Asthma Regional Council, 2004/ Behavioral Risk Factor Surveillance System

Ambient Ozone

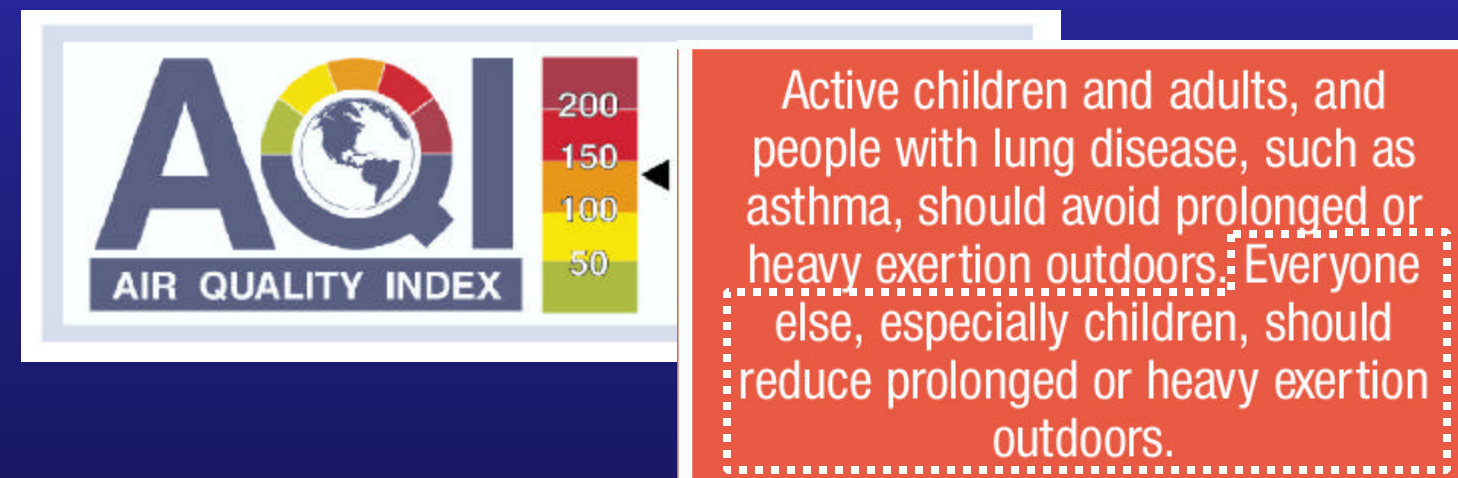


43% of Maine population lives in revised non-attainment areas.

There are ~12 days per year with ozone above unhealthful standard.

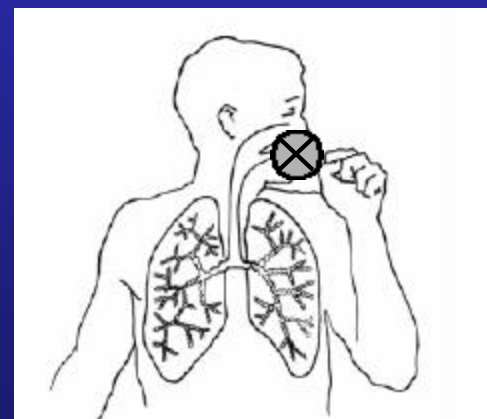


Intervention

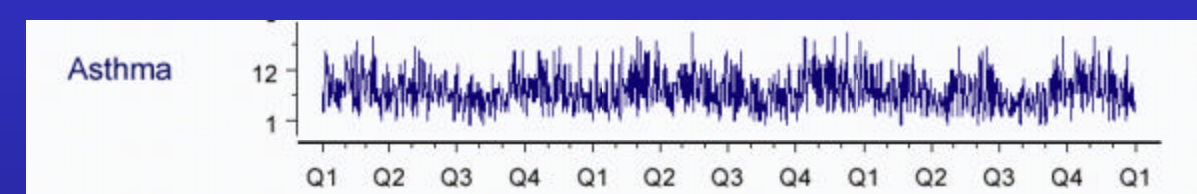


Intervention

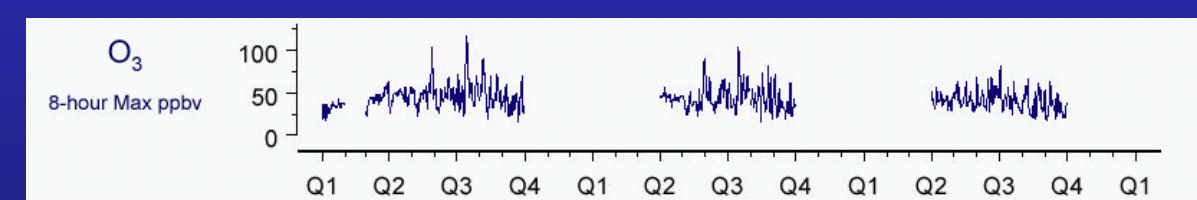
- Preventive message ≈
‘Don’t Breathe Hard Outdoors’



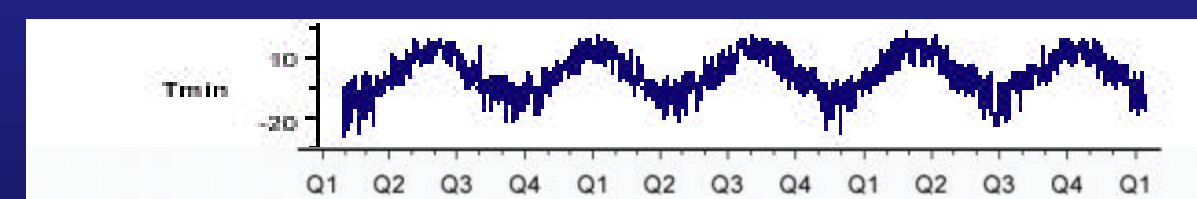
Surveillance Data - available?



} Health Effects
Data (MHDO)



} Hazard Data
(DEP)



} Confounding
Weather Data
(NOAA)

- Time-Series Analysis

Surveillance-Research Question

- Do emergency department visits for asthma increase with increasing levels of ambient ozone?

Environmental Health Perspectives, Volume 104, Number 12, December 1996

[\[Citation in PubMed\]](#) [\[Related Articles\]](#)

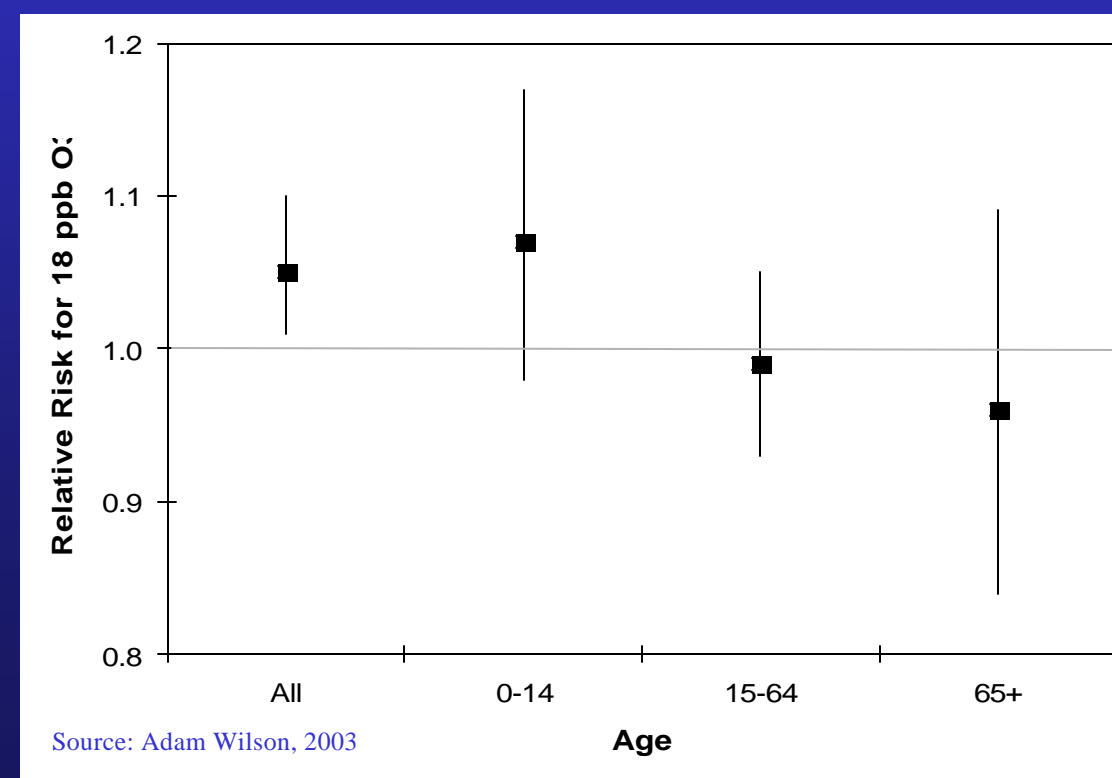
Association between Ozone and Asthma Emergency Department Visits in Saint John, New Brunswick, Canada

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Will we see anything?

- Results from A. Wilson (UNH) found increase in asthma visits for an 18 ppb increase in Ozone levels.



Surveillance Goals for AQ/Asthma

- 1) Understand the contribution of ambient air pollution to asthma morbidity;
- 2) Evaluate, refine, evaluate...preventive messages regarding ambient air quality;
- 3) Develop the capability for real-time surveillance in order to mitigate the effects of air pollution events (?)

Status

- Ties to DEP, MHDO, ALAM
- New ozone monitor in Portland
 - Better population exposure estimate
 - Year-round data
- Invited to participate in national initiative to collect/model ozone
 - CDC-EPA-NASA-NOAA
 - Potential for enhanced exposure data

Next Steps

- Replicate Wilson's analysis
- Basic surveillance - person, place, time
- Plan for tracking this association
- Plan for enhancing data collection/analysis:
 - Pollen, multiple pollutant models
 - ED asthma validation
- Investigate use of modeled ozone data

Discussion Questions

- Ambient air quality and asthma/respiratory effects – is this a priority topic?
- Would real-time surveillance be worthwhile?